25X1 Approved For Release 2002/06/17 : CIA-RDP78B04767A000400180002-5

SECRET

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OUT: 72506

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PRIORITY

PRIORITY

OFFICE OF PRIME INTEREST

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SUBJECT: AUTOMATIC EXPOSURE CONTROL (AEC) TEST EVALUATION

25X1 1. IN RESPONSE TO REF A AND B, THE FOL IS A REPORT OF THE AEC TEST FLOWN ON [redacted]. THE PURPOSE OF THE MSN WAS TO EVALUATE THE A&C SENSOR'S PERFORMANCE UNDER CONDITIONS SIMILAR TO THOSE OF OPERATIONAL OLD HEAD MSNS.

2. AN EXAMINATION OF THE MSN FILM REVEALS THE FOL:

A. THE CLOUD COVER FOR THE ENTIRE MSN IS 25 PCT; HOWEVER, PORTIONS CONTAIN COVER AS HIGH AS 75 PCT.

B. WHENEVER PARTIAL CLOUD COVER IS ENCOUNTERED N OF THE CENTER OF FORMAT, DETAIL IN CLOUD SHADOWS IS LOST BECAUSE OF UNDEREXPOSURE. AS THE CLOUD COVER CONTINUES TO INCREASE, THE CLEAR PORTION BECOMES INCREASINGLY UNDEREXPOSED BY AT LEAST ONE FULL STOP.

C. THE MAJORITY OF THE LAND/WATER TRANSITIONS WERE CONTAMINATED WITH CLOUDS. IN SOME CASES, THE CLEAR PORTION OVER THE KEYS WAS OVEREXPOSED BY APPROX 1.0 TO 1.5 STOPS. THIS OVEREXPOSED CAUSED A SEVERE DECREASE IN IMAGE CONTRAST.

D. SEVERAL INSTANCES OF SEVERE IMAGE QUALITY DIFFERENCES (DENSITY AND CONTRAST) WERE NOTED BETWEEN STEREO FR PAIRS BECAUSE OF DIFFERENCES IN EXPOSURE.

3. CONSIDERING THE ABOVE IMAGE DENSITY AND CONTRAST VARIATIONS AND THE KNOWLEDGE THAT THE NEGATIVE IS USED TO PRODUCE DUPLICATES FOR INTERPRETATION, IT IS FELT THAT SUCH NEGATIVES WOULD PRODUCE UNACCEPTABLE DUPLICATES FOR INTERPRETATION. THE DUPLICATION SYSTEM FUNCTIONS ON AN AVERAGE DENSITY/CONTRAST CRITERIA. THEREFORE, IF LARGE DEVIATIONS ARE ENCOUNTERED, THE AVERAGE DUPLICATE WOULD BE POORER IN QUALITY THAN A NORMAL FIXED SLIT MSN. IN ADDITION, SEVERE SHADOW DETAIL LOSS IS EVIDENT IN THE ORIGINAL. THIS CONDITION WOULD HAVE CAUSED A LOSS OF TARGET INFORMATION ON AN OPERATIONAL MSN.

4. BECAUSE THIS TEST MSN WAS FLOWN WITH CONDITIONS QUITE SIMILAR TO THOSE FOUND ON OPERATIONAL MSNS, IT IS CONCLUDED THAT THE AEC DEVICE, AS NOW FUNCTIONING, CANNOT SATISFY THE EXPOSURE PROBLEMS OF OLD HEAD MSNS. THE CAPABILITY OF AN ALTERNATE SLIT SELECTIVELY AVAILABLE TO THE PILOT MAY BE A POSSIBLE SOLUTION TO THE IMMEDIATE PROBLEM.

SECRET

END OF MESSAGE

GROUP ONE

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[redacted]

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DIVISION	DATE:
PS	18 June 1970

FILE: 452121	INITIALS	DATE
Ch/TSG		
Ch/APSD		
D.Ch/APSD		
Secretary/APSD		
Ch/IEB		
D.Ch/IEB	WRC	18 June
Ch/IEB/Sec.I		
Ch/IEB/Sec.II		
Secretary/IEB	am	
[redacted]	RJH	18 June
Ch/ISAB		
D.Ch/ISAB		
Secretary/ISAB		
Ch/OAB		
D.Ch/OAB		
Ch/PSSB		
D.Ch/PSSB		
Ch/PSSB/ATS		
Ch/PSSB/DS		
Secretary/PSSB		

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